

Remarks/Arguments:

With the present amendment, claims 1-29 are pending. Claim 28 includes subject matter of original claim 1 and allowable claim 8 and claim 29 includes subject matter of original claim 26 and allowable claim 8.

The Examiner is thanked for the indication that claims 10-15, 21, and 22 are objected to as being dependent on a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The Examiner is also thanked for the indication that claims 8, 9, 25, and 27 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office Action and to include all of the limitations of the base claim and any intervening claims.

Claim rejections

Claim rejections under 35 U.S.C. §112

Claims 7-9, 25 and 27 stand rejected under 35 U.S.C. §112, 2nd paragraph, as being indefinite for failing to point out and distinctly claim the subject matter which the Applicant regards as the invention. Applicants respectfully traverse this rejection.

The Office Action stated that claims 7 and 25 recite the limitation "the interrupter switch signal transmitters" in lines 1-2. The Office Action further stated that there is insufficient antecedent basis for the limitation in the claim. Each of claims 7 and 25 have been amended to recite "each interrupter switch". Applicants believe that these amendments provide proper antecedent basis for the limitations.

Further, the Office Action stated that the phrase "amount of the source emission detected" in each of claims 7 and 25 seems awkward. Claims 7 and 25 have been further amended to recite "amount of the emission detected from the source." Applicants believe that these amendments have clarified the language in the claims.

Additionally, the Office Action stated that in claims 8, 9, 25, and 27, the claim language recites "an indication from the interrupter switch", but that it was unclear which interrupter switch is being referred to since claim 1 recites that there are at least two interrupter switched. Applicants have amended claims 8, 9, 25, and 27 to recite "an indication from one of the interrupter switches."

Applicants respectfully submit that the 35 U.S.C. 112 rejections of claims 7-9, 25, and 27 have all been properly addressed, and Applicants respectfully request reconsideration and allowance of claims 7-9, 25, and 27.

Claim rejections under 35 U.S.C. §102

Claims 1, 4, 5, 7, 18, 23, and 26 all stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 6,483,105 to McAllister et al. ("McAllister"). The Office Action stated that McAllister discloses in Figs. 3 and 4, a rotary actuator 28 comprising an electrical motor 32 that rotates an input shaft (motor shaft 36) connected to an output device (gearbox 26) via a gear train (38), an interrupter vane (optical encoder 44) connected to the output device via the motor and gear train and adapted to travel in a path corresponding to the movement of the output device, and two interrupter switches 60 that are spaced apart from each other wherein each interrupter switch comprises a light emitter 56 and a photodetector 54 and an interrupter channel (gap between the source and detector) aligned between the source and the detector wherein the interrupter vane is positioned within the interrupter channel. The office Action also states that McAllister further discloses the inclusion of a controller 48 connected to the interrupter switches for powering the motor in response to a command signal (demand signal) (col. 6, lines 19-27, 47-48). The Office Action states that McAllister fails to expressly disclose the controller being connected to a power supply, however a power supply is needed to power the controller. Applicants respectfully traverse this rejection.

Claim 1, as amended, recites, *inter alia*, an actuator comprising a motor for rotating an input shaft connected to an output device via a gear train; an interrupter vane connected to the output device and adapted to travel in a path corresponding to the movement of the output device; and at least two interrupter switches spaced apart from one another along the path of the interrupter vane at locations corresponding to travel limits of the output device. Each interrupter switch comprises a source, a detector spaced from the source, and an interrupter channel aligned with the travel path of the interrupter vane and located between the source and the detector. The interrupter vane is adapted to be positioned within the interrupter channel when the output device is positioned at the corresponding travel limit., The interrupter vane is in no more than one interrupter channel at any time. Each interrupter switch adapted to indicate whether the detector detects an emission from the source. A controller is connected to a power supply and to the interrupter switches for energizing the motor in response to a

command signal and for de-energizing the motor in response to an indication from one of the interrupter switches that the interrupter vane is at or approaching one of the travel limits.

Claim 26, as amended, recites, *inter alia*, an airplane comprising one or more actuators. Each actuator comprises a motor for rotating an input shaft connected to an output device via a gear train; an interrupter vane connected to the output device and adapted to travel in a path corresponding to the movement of the output device; and at least two interrupter switches spaced apart from one another along the path of the interrupter vane at locations corresponding to travel limits of the output device. Each interrupter switch comprises a source, a detector spaced from the source, and an interrupter channel aligned with the travel path of the interrupter vane and located between the source and the detector. The interrupter vane is adapted to be positioned within the interrupter channel when the output device is positioned at the corresponding travel limit. The interrupter vane is in no more than one interrupter channel at any time. Each interrupter switch is adapted to indicate whether the detector detects an emission from the source. A controller is connected to a power supply and to the interrupter switches for energizing the motor in response to a command signal and for de-energizing the motor in response to an indication from one of the interrupter switches that the interrupter vane is at or approaching one of the travel limits.

McAllister, on the other hand, discloses an interrupter 52 that extends approximately 180 degrees around a rotatable disc. See Fig. 4. Fig. 4 also shows a pair of photodetectors 54/emitters 56 that are spaced approximately 90 degrees from each other around the disc. A channel extends between each photodetector 54/emitter 56 pair. The interrupter 52 will, at various times during the rotation of the disc, be simultaneously within both channels, as shown in Fig. 4. This arrangement is used as a counter to count the number of rotations of the shaft 36.

In order to anticipate a claim under 35 U.S.C. §102, the reference must teach every element of the claim. M.P.E.P. §2131. Furthermore, "the identical invention must be shown in as complete detail as is contained in the . . . claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236 (Fed. Cir. 1989) and M.P.E.P. §2131.

Applicants respectfully submit that McAllister fails to disclose or suggest the limitation of the interrupter vane being in no more than one interrupter channel at any time, as is recited in

each of amended claims 1 and 26. As can easily be seen by McAllister's Fig. 4, the interrupter 52 is in both channels over approximately 90 degrees of rotation, and therefore fails to meet a limitation of each of claims 1 and 26. For at least this reason, Applicants respectfully submit that claims 1 and 26 are patentable over the cited prior art and respectfully request reconsideration and allowance of claims 1 and 26.

Claims 4, 5, 7, 18, and 23 all depend, either directly or indirectly, from claim 1, and Applicants respectfully submit that claims 4, 5, 7, 18, and 23 are all patentable over the cited prior art for at least the same reasons as set forth above with respect to claim 1. Applicants therefore respectfully request reconsideration and allowance of claims 4, 5, 7, 18, and 23.

Claim rejections under 35 U.S.C. §103

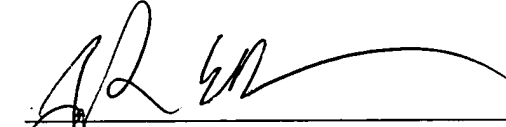
In the Office Action, claims 2, 3, 6, 16, 17, 19, 20, and 24 were rejected under 35 U.S.C. §103(a) as being unpatentable over McAllister. Applicants respectfully traverse this rejection.

Claims 2, 3, 6, 16, 17, 19, 20, and 24 all depend, either directly or indirectly, from claim 1, and Applicants respectfully submit that claims 2, 3, 6, 16, 17, 19, 20, and 24 are all patentable over the cited prior art for at least the same reasons as set forth above with respect to claim 1. Applicant therefore respectfully requests reconsideration and allowance of claims 2, 3, 6, 16, 17, 19, 20, and 24.

Conclusion

With the present amendments and arguments, Applicants respectfully submit that claims 1-29 are in condition for allowance. Prompt reconsideration and allowance of same is respectfully requested.

Respectfully submitted,



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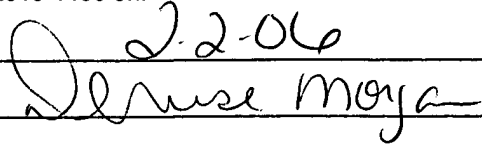
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